In the Claims:

1. (Currently Amended). A frame in a network, which connects a plurality of different client apparatuses, concentrates client data frames transferred from the client apparatuses to multiplex ~~the~~ same on a same carrier wave, separates the client data frames multiplexed on the same carrier wave, and transfers the client data frames to other client apparatuses ~~opposite to the client apparatuses transmissively~~, the frame comprising:

a data length identifier indicating a data length;

a flow identifier indicating one of classification, quality and a channel of a client data traffic;

a frame header error check (FHEC) area for an area of n bytes ~~(n: a plus integer)~~ from M plus 1-th byte, which stores a result Y having n bytes or less, the result Y being obtained by computing a numerical value X having the predetermined M bytes from ~~the head (M: a plus integer)~~ a header by a predetermined coding method; and

a payload area having a variable length, which stores client data frames.

2. (Currently Amended). A frame in a network, which connects a plurality of different client apparatuses, concentrates client data frames transferred from the client apparatuses to multiplex the same on a same carrier wave, separates the client data frame multiplexed on the same carrier wave, and transfers the client data frames to other client apparatuses ~~opposite to the client apparatuses transmissively~~, the frame comprising:

a data length identifier indicating a data length;

a flow identifier indicating one of classification, quality and a channel of a client data traffic;

a frame header error check (FHEC) area for an area of n bytes ~~(n: a plus integer)~~ from M plus 1-th byte, which stores a result Y having n bytes or less, the result Y being obtained by computing a numerical value X having the predetermined M bytes from the head ~~(M: a plus integer)~~ by a predetermined coding method;

a payload area having a variable length, which stores client data frames; and

an error detection area performing an error check.

3. (Original) A frame according to claim 2,

wherein the error detection area is used for error detection of one of the entire frame and the payload area.

4. (Currently Amended). A frame according to claim 1,

wherein the data length identifier indicates a length of one of the payload area and the ~~entire~~ frame.

5. (Currently Amended). A frame according to claim 1,

wherein the data length identifier indicates the length of the ~~entire~~ frame, and in ~~the~~ a case where a value of the data length identifier is smaller than a value obtained by adding sizes of the data length identifier, the flow identifier and the FHEC information area or alternatively a value obtained by adding sizes of the data length identifier, the flow identifier, the FHEC information area and the error detection area, the data length identifier indicates one of ~~an~~ a management information exchange channel and an information exchange channel controlling a traffic.

6. (Original) A frame according to claim 5,

wherein the frame has a predetermined length.

7. (Original) A frame according to claim 1,

wherein a specified number given by the flow identifier indicates one of a management information exchange channel and an information exchange channel controlling a traffic.

8. (Currently Amended). A frame according to claim 1,

wherein, in ~~the~~ a case where a length M obtained by adding the data length identifier and the flow identifier is four-byte length, and a length n of coding of the FHEC is one-byte length, a system different from a header error check (HEC) system for an asynchronous transfer mode (ATM) is employed for coding the FHEC.

9. (Currently Amended). A frame according to claim 1,

wherein in ~~the~~ a case where areas of one of the flow identifier and the data length identifier exceed a predetermined length, exceeded bytes from predetermined bytes are arranged at the rear of bytes after the FHEC area.

10. (Original) A frame according to claim 1,

wherein in the payload, one or more of a layer 3 data frame, a layer 2 data frame and a layer 1 data frame are accommodated.

11. (Currently Amended). A frame extraction circuit in a network, which connects a plurality of different client apparatuses, concentrates client data frames transferred from the client apparatuses to multiplex the same on a same carrier wave, separates the client data multiplexed on the same carrier wave, and transfers the client data frames to other client apparatuses ~~opposite to the client apparatuses transmissively~~, the frame extraction circuit comprising:

a phase adjustment buffer for storing a input signal row temporarily in ~~the~~ a case where a signal row having the frame according to claim 1 and an ATM cell multiplexed on ~~a~~ the same carrier wave is received;

a flow amount counter for counting the signal row transferred from the phase adjustment buffer to subtract the counted value from a predetermined value;

an output encoder for outputting ~~a~~ another signal row transferred from the flow amount counter and a classification of the signal row in the case where the output encoder is in an active status;

an n-byte storer for storing n bytes in the input signal row;

an FHEC decoder for converting M bytes immediately before the n bytes stored in the n-byte storer into a numerical value of the n bytes according to a same coding method as that of FHEC of the frame;

a one byte storer for storing one byte in the input signal row;

an HEC decoder for converting four bytes immediately before the one byte stored in the one byte storer into a numerical value of the 1 byte according to a same coding method as that of HEC of an ATM;

a first comparator for comparing a value of the FHEC decoder and a value of the n-byte storer with each other and for sending FHEC hunting information in the case where the value of the FHEC decoder and the value of the n-byte storer are identical;

~~A~~ a second comparator for comparing a value of the FHEC decoder and a value of the one byte storer with each other, and for sending HEC hunting information in the case where the value of the FHEC decoder and the value of the one byte storer are identical;

a determinator for receiving one of FHEC hunting information from the first comparator and HEC hunting information from the second comparator to detect that one of the frame and the ATM cell is received;

a frame length storer for reading ~~the~~ frame overhead from the FHEC decoder to compute a frame length, for holding the ATM cell length and a predetermined frame length and for setting a numerical value held in the flow amount counter; and

a status management section for sending a frame classification signal to the frame length storer and a numerical value setting instruction signal to the flow amount counter according to control signals from the determinator and the flow amount counter to notify one of active status and non-active status signals and a signal identifying one of the frame and the ATM to the output encoder,

wherein the frame and the ATM are separated from each other.

12. (Original) A frame extraction circuit according to claim 11,

wherein the status management section sets the output encoder into an active status together with information of one of the hunt frame and the hunt ATM cell in the case where receipt of hunting information of one of the frame and the ATM cell from the

determinator upon receiving a control signal indicating that a counter value from the flow amount counter is equal to a threshold value or less occurs a predetermined number of times or more, and the status management section sets the output encoder into a non-active status in the case where the status management section does not receive hunting information of the frame and the ATM cell from the determinator when the status management section receives a control signal indicating that a counter value from the flow amount counter is equal to a threshold value or less, or in the case where receipt of hunting information of one of the frame and the ATM cell from the determinator upon receiving a control signal indicating that a counter value from the flow amount counter is equal to a threshold value or less is not detected a predetermined number of times or more.

13. (Original) A frame extraction circuit according to claim 11,

wherein the status management section notifies a frame classification to the frame length storer upon receiving a control signal indicating that a counter value from the flow amount counter is equal to a threshold value or less, and notifies to the frame length storer a setting instruction to the flow amount counter upon receiving a control signal indicating that a counter value from the flow amount counter is zero.

14. (Currently Amended). A frame extraction circuit according to claim 11,

wherein upon receiving a frame classification signal from the status management section, in the case where the frame classification is a frame, the frame length storer extracts an overhead of the frame from the FHEC decoder, refers to the data length identifier and the flow identifier, computes from the data length identifier if the frame is not a

frame for one of management and control, and holds a previously set data length if the frame is the frame for one of management and control, and in the case where the frame classification is an ATM cell, the frame length storer holds ~~a~~ another previously set data length, and upon receiving a setting instruction signal from the status management section to the flow amount counter, the frame length storer sets the stored data length into the flow amount counter.

15. (Currently Amended). A transmission apparatus in a network, which connects a plurality of different client apparatuses, concentrates client data frames transferred from the client apparatuses to multiplex the same on a same carrier wave, separates the client data multiplexed on the same carrier wave, and transfers the client data frames to other client apparatuses ~~opposite to the client apparatuses transmissively~~, the transmission apparatus comprising:

input client data terminators, each being for terminating a client data frame other than an ATM from the client apparatus to detect a client data frame length and an attribute thereof;

client data buffers, each being for temporarily storing a client data frame from the input client data ~~terminator~~terminators;

frame overhead generators, each being for reading out data having a designated size from the client data buffer after generating an overhead of the frame according to claims 1 based on a client data frame length and an attribute which are notified from the input client data ~~terminator~~terminators;

frame generators, each being for constituting the frame by combining the client data frame read out from the client data buffer and data transferred from the frame overhead ~~generator~~generators;

first input buffers, each being for temporarily storing the frame transferred from the frame ~~generator~~generators;

an ATM data terminator for terminating an ATM cell from an ATM client apparatus;

a second input buffer for temporarily storing an ATM cell transferred from the ATM data terminator;

receivers, each being for terminating a carrier wave having the frame and the ATM cell mixed;

frame extractors, each having a frame extraction circuit constitution according to claim 11 which separates signal row by one of the frame and the ATM cell;

third input buffers, each being for temporarily storing one of the frame and the ATM cell which are transferred from the frame ~~extractor~~extractors;

a scheduler for determining an output port with reference to the flow identifier transferred from each of the first, second and third input buffers and a connection identifier of the ATM cell and reading out one of the frame and the ATM cell from the input buffers in consideration of a priority and quality thereof;

a frame SW for exchanging the frame and the ATM cell which are transferred from the input buffers, the frame SW being controlled by the scheduler;

first, second and third output buffers for storing one of the frame and the ATM cell transferred from the frame SW;

frame adaptation sections, each being for accommodating the frame and the ATM cell which are transferred from the first output ~~buffers~~buffer;

transmitters, each being for transferring a signal from the frame adaptation section onto a carrier wave;

frame overhead terminators, each being terminating and deleting an overhead of the frame transferred from the second output buffer to form only a payload;

output client data terminators, each being for converting payload from the frame overhead terminator to transfer the converted client data frame to ~~an~~ a client apparatus; and

an output ATM data terminator for transferring an ATM cell from the third output buffer to an ATM client apparatus.

16. (Currently Amended). A transmission apparatus according to claim 15, further comprising:

scramblers, each being for randomizing client data transferred from the client data buffer to transfer the randomized client data to the frame generator; and

descramblers, each being for returning a signal row of the client data randomized by the scrambler, the signal row being transferred from the frame overhead ~~terminator~~terminators, into the original client data to transfer the returned client data to the input client data terminator.

17. (Original). A transmission apparatus according to claim 15, further comprising:

error detection redundancy adders, each being for adding a redundancy bit having a fixed length for error detection to an inputted client data frame; and

error detectors, each being for detecting an error from data composed of inputted client data frame and a redundancy bit for error detection, and for deleting a redundancy bit for error detection,

wherein the frame overhead generator counts an amount of redundancy bits as a payload length, and constitutes a data identifier of the frame according to claims 1.

18. (Currently Amended). A transmission apparatus according to claim 17,

wherein each of the error detection redundancy adders is arranged between the client data ~~buffer~~ buffers and the frame ~~generator~~generators, and each of the error detectors is arranged between the frame overhead terminator and the input client data ~~terminator~~terminators.

19. (Currently Amended). A transmission apparatus according to claim 17,

wherein, upon detecting an error, the error detector revises or discards one of the client data frame and the entire frame according to ~~claims~~ claim 1.

20. (Original). A transmission apparatus according to claim 17,

wherein each of the error detection redundancy adders is arranged between the frame generator and the second input buffer, and each of the error detectors is arranged between the second output buffer and the frame overhead.

21. (Currently Amended). A transmission apparatus according to claim 15, further comprising:

client data frame ~~spliters~~splitter, each being for converting a data length into a numerical value of data lengths equal to a previously designated length or less to notify the converted numerical value to the frame overhead in the case where the data length notified from the client data terminator is longer than the previously designated length; and

client data frame constructors, each being for temporarily storing a payload of the frame according to claims 1, and for returning ~~the~~ split client data frame into an original client data frame in the case where the client data frame of the payload is split.

22. (Currently Amended). A transmission apparatus according to claim 21,

wherein each of the client data frame ~~spliters~~ splitter is arranged between the client data terminator and the frame overhead generator, and each of the client data frame constructors is arranged immediately before the input client data ~~terminator~~terminators.

23. (Original) A transmission apparatus according to claim 15,

wherein, in the case where there do not exist one of the frame and the ATM cell which is transferred from the first output buffer, each of the frame adaptation sections constitutes the frame setting the payload length to zero.